

IN THE CLAIMS

Please amend the claims as follows:

What is claimed is:

1. (Currently Amended) A an intergrated gradient coil and probing coil positioning assembly capable of operating with an MRI apparatus, said assembly having an axis, said assembly being configured for use with a main MRI magnetic imaging magnet having a main MRI magnet bore adapted to image a non-human laboratory specimen, comprising:
  - a first mounting member mountable relative to the main MRI magnetic imaging magnet so as to hold said assembly in a fixed axial position;
  - a locator member rigidly coupled to and spaced a predetermined axial distance apart from said first mounting member with at least one axial spacer and insertable within the main MRI magnet bore, said locator member having a surface portion transverse to said axis of said assembly and configured to engage and axially and concentrically locate a gradient first coil in the main MRI magnet bore;
  - a spacer member rigidly coupled to and spaced a predetermined axial distance apart from said first mounting member and from said locator member and with said spacer member also being insertable within the main MRI magnet bore, said spacer member having a keyed surface portion; and
  - a second mounting member having a keyed surface portion axially fixed by and engageable with said keyed surface portion of said spacer member, said second mounting member being configured to axially locate a probing second coil in the main MRI magnet bore at a predetermined axial distance relative to the main MRI magnetic imaging magnet and said gradient first coil-; and

said first mounting member, said locator member and said spacer member each having an aperture configured and aligned to receive a specimen holder passing through each aperture.

2. (Previously Presented) The assembly of claim 1, wherein said first mounting member comprises a flange mountable to an external surface portion of the main MRI imaging magnet and a plug portion inserted within the main MRI magnet bore.
3. (Previously Presented) The assembly of claim 1, wherein said locator member comprises an abutment surface portion for engaging the gradient first coil.
4. (Previously Presented) The assembly of claim 1, wherein said spacer member comprises a plate insertable within the gradient first coil.
5. (Previously Presented) The assembly of claim 1, wherein said second mounting member comprises a cap mountable to the probing second coil.
6. (Previously Presented) The assembly of claim 1, further comprising a plurality of front space spacer members interconnecting said first mounting member and said locator member.
7. (Original) The assembly of claim 1, further comprising a plurality of inner spacer members interconnecting said locator member and said spacer member.
8. (Original) The assembly of claim 1, further comprising a pair of support rods coupled to said first mounting member, said locator member and said spacer member.
9. (Original) The assembly of claim 1, further comprising a specimen positioning assembly removably mounted within said first mounting member and said locator member.

10. (Currently Amended) A An integrated gradient coil positioning assembly mountable within a bore of an MRI imaging apparatus having an axis and configured to image a non-human laboratory specimen, comprising:

a front mounting member axially engageable with the MRI said imaging apparatus so as to hold said assembly on said imaging apparatus;

an annular locator member configured to fit closely within the bore of the MRI imaging apparatus and being rigidly connected to said front mounting member with at least one axial spacer, said locator member rigidly spaced a predetermined axial distance apart from said front mounting member and having a surface portion adapted configured to engage and axially and concentrically locate a gradient first coil in the bore;

an annular spacer member rigidly connected to said annular locator member and configured to fit within and support the gradient first coil; ~~and~~

a pair of support rods carried by said front mounting member, carried by said locator member and carried by said spacer member, said rods being located to pass axially through the gradient first coil in the bore;

said front mounting member, said annular locator member and said annular spacer member each having an aperture configured and aligned to receive a specimen holder passing through each aperture.

11. (Previously Presented) The assembly of claim 10, wherein said pair of support rods comprises a pair of cylindrical rods.

12. (Previously Presented) The assembly of claim 10, wherein said front mounting member comprises a front flange mountable externally of said bore.

13. (Previously Presented) The assembly of claim 10, wherein said pair of support rods is aligned in a horizontal plane passing through said axis.
14. (Previously Presented) The assembly of claim 10, further comprising a specimen positioning assembly supported in said positioning assembly on said support rods.
15. (Original) The assembly of claim 14, further comprising a pair of support rails provided on said specimen positioning assembly and slidably engaged with said pair of support rods.
16. (Currently Amended) A coil and specimen positioning system for positioning a non-human laboratory specimen in a predetermined position within a bore of an MRI imaging machine and through a bore of a gradient coil located concentrically in the bore of the MRI imaging machine, said coil and specimen positioning system comprising:
- an integrated coil positioning assembly comprising a first pair of support members insertable within said bore of said MRI imaging machine and through the bore of the gradient coil, said coil positioning as assembly having an aperture for axial passage of said specimen;
- a specimen positioning assembly comprising a specimen retention device configured to pass through said aperture, and a second pair of support members insertable within said first pair of support members; and
- an interconnection provided between said first and second pairs of support members, said interconnection locating said specimen positioning assembly concentrically within said bore of said imaging machine and concentrically within the bore of said coil.

17. (Original) The system of claim 16, wherein said sliding interconnection comprises a pair of rods and a pair of grooved rails.

18. (Original) The system of claim 16, wherein said sliding interconnection comprises a self-centering interconnection.

19. (Previously Presented) The system of claim 16, further comprising a mounting member fixed to said MRI imaging machine, and wherein said first pair of support members is connected to said mounting member, and wherein said specimen positioning assembly is freely insertable into said mounting member and freely removable therefrom.

20. (Previously Presented) The system of claim 16, wherein said specimen positioning assembly comprises an engagement member for limiting insertion of said specimen positioning assembly into said MRI imaging machine

21. (Currently Amended) A method of automatically positioning a non-human laboratory specimen in an MRI imaging apparatus having an MRI imaging bore, comprising:

mounting a positioning assembly concentrically in the MRI imaging bore of the MRI imaging apparatus;

abutting a first surface on the positioning assembly against the MRI imaging apparatus;

constraining a specimen in a specimen holding assembly having a specimen assembly positioning surface;

inserting the specimen holding assembly into the positioning assembly;

abutting a the positioning surface on said specimen holding assembly with a second positioning surface on the positioning assembly; and

axially spacing the specimen holding assembly a predetermined axially distance within the MRI imaging bore of the MRI imaging apparatus by said abutting, whereby the specimen within the specimen holding assembly is automatically positioned in the MRI imaging apparatus at a desired position.